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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YATIN ACHARYA

Appeal 2008-005155
Application 09/905,080¹
Technology Center 2100

Decided:² June 9, 2009

Before JEAN R. HOMERE, JAY P. LUCAS, and JOHN A. JEFFERY,
Administrative Patent Judges.

HOMERE, *Administrative Patent Judge.*

DECISION ON APPEAL

¹ Filed on July 16, 2001. The real party in interest Advanced Micro Devices, Inc.

² The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

I. STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 through 13. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Appellant's Invention

Appellant invented a method and a flow control system for managing traffic output of a network node (Spec. 1, ll. 3-4.) As depicted in Figure 2, the network node contains a processor (110), a system memory (48), a memory controller (130), and a network interface, such as a host channel adapter (HCA-120). (Spec. 4, ll. 19-21.) Upon executing one of various prescribed media streaming applications, the processor (110) causes the HCA (120) to output corresponding data streams according to the InfiniBand (IB) protocol. (Spec. 4, ll. 22-26.) However, upon detecting that the network bandwidth is depleted for any of the prescribed data streams, the HCA (120) halts the transmission of the data stream on a corresponding virtual lane to thereby cause the processor to reduce the execution of the media streaming application associated therewith. (Spec. 4, l. 28- Spec. 5, l. 11.)

Illustrative Claim

Independent claim 1 illustrates the invention as follows:

1. A method in a network node, the method comprising:
detecting by a network interface in the network node a depletion of flow control resources representing a depletion of network bandwidth for a prescribed data stream;
outputting by the network interface a data flow interruption request based on the detected depletion of flow control resources; and
reducing, by a processor in the network node and based on the data flow interruption request, the prescribed data stream by reducing execution

of a prescribed application resource configured for generating the prescribed data stream.

Prior Art Relied Upon

The Examiner relies on the following prior art as evidence of unpatentability:

Pekkala

US 2002/0085493 A1

Jul. 4, 2002

Rejection on Appeal

The Examiner rejects the claims on appeal as follows:

Claims 1 through 13 stand rejected under 35 U.S.C. § 102(e) as being anticipated over Pekkala.

Appellant's Contentions

Appellant argues that Pekkala does not teach that upon detecting a depletion of a network bandwidth for a prescribed data stream, a network interface in a network node outputs a data flow interruption request to cause a processor in the network node to reduce the execution of a prescribed application resource configured to generate the data stream, as recited in independent claim 1. (App. Br. 6-20, Reply Br. 2-9.)

Examiner's Findings/Conclusions

The Examiner finds that Pekkala's disclosure of a buffer control logic, upon detecting insufficient space in a buffer or insufficient flow control credit to transmit a packet, notifies a flow control logic to stop transmitting

data packet streams in an IB switch teaches the claimed limitations. (Ans. 7-11.)

II. ISSUE

Has Appellant shown that the Examiner erred in finding that Pekkala's disclosure teaches, upon detecting a depletion of a network bandwidth for a prescribed data stream, an interface in a network node outputs a data flow interruption request to cause a processor therein to reduce the execution of a prescribed application resource configured to generate the data stream, as recited in independent claim 1?

III. FINDINGS OF FACT

The following findings of fact (FF) are supported by a preponderance of the evidence.

Pekkala

1. Pekkala discloses a control flow mechanism that fully utilizes the bandwidth of each link associated with a port by advertising thereon at least two packets or credits until the port stops its respective link partner from further transmitting any more packets. (Paras. 0015, 0019, 0063, 0065.)

2. As depicted in Figure 1, the control flow mechanism includes, *inter alia*, an IB switch (106) connected to a plurality of processor (102) end nodes via a respective IB HCA (104). (Para. 0044.)

3. As shown in Figure 2, each IB switch (106) includes a plurality of IB ports (208) associated with respective buffers (204) for buffering IB packets received from the IB ports. Each of the buffers includes a plurality of IB virtual lanes (214) through which a buffer control logic (206) allocates

and routes the packets in and out of the buffers from and to the ports. (Paras. 0049-0051.)

4. As shown in Figure 7, upon detecting that a shared buffer (604) is not available for storage, the buffer control logic (606) sends a signal (744) to notify the flow control logic (726) to shut down its corresponding link partner (752). (Paras. 0112-0113.)

IV. PRINCIPLES OF LAW

ANTICIPATION

In rejecting claims under 35 U.S.C. § 102, “[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citing *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992)).

Anticipation of a patent claim requires a finding that the claim at issue ‘reads on’ a prior art reference. In other words, if granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated, regardless of whether it also covers subject matter not in the prior art. *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed Cir. 1999) (internal citations omitted).

V. ANALYSIS

Claim 1

Independent claim 1 recites in relevant part that, upon detecting a depletion of a network bandwidth for a prescribed data stream, a network interface in a network node outputs a data flow interruption request to cause

a processor in the network node to reduce the execution of the application resource configured to generate the data stream.

As set forth in the Findings of Fact section, Pekkala discloses maximizing the use of the bandwidth of each link associated with a port by advertising thereon at least two packets. (FF. 1.) Further, Pekkala discloses a flow control mechanism having a buffer control logic in an IB switch that notifies a flow control logic in the switch to shut down a link partner upon detecting that no more buffering space is available for storing packet data. (FF. 4.) We agree with Appellant that Pekkala's flow control mechanism does not fairly or reasonably teach the claimed network interface that outputs an interrupt request to cause a processor to reduce the execution of an application configured to generate a prescribed data stream. We find that Pekkala at best teaches a controller that notifies a flow control logic to reduce the flow of data by shutting down the link partner associated therewith upon detecting that no additional buffer space is available. While it can be reasonably argued that the shutting down the link partner is intended to prevent a depletion in bandwidth, the shutdown is not actually based on the bandwidth depletion. Rather, the shutdown of the link partner or reduction of the data flow is based upon detecting a lack of memory space in a buffer as opposed to a lack of bandwidth in the link partner. Similarly, while the buffer control logic can be viewed as an interface in the switch that causes the flow control logic to prevent a link partner associated therewith from accepting any more data stream, we find that such data stream was not prescribed or generated by an application resource being executed in the flow control logic. Therefore, the incoming data stream detected by the

buffer control logic cannot be cannot be used to detect depletion of bandwidth in a link partner associated therewith.

Since Appellant has shown that Pekkala fails to teach at least one limitation required by independent claim 1, we need not address Appellant's remaining arguments. It follows that Appellant has shown that the Examiner erred in finding that Pekkala anticipates independent claim 1.

Because claims 2 through 13 also recite the limitations discussed above, Appellant has also shown error in the Examiner's rejection of those claims for the aforementioned reasons discussed in conjunction with claim 1.

VI. CONCLUSION OF LAW

Appellants have shown that the Examiner erred in finding that Pekkala anticipates claims 1 through 13.

VII. DECISION

We reverse the Examiner's decision to reject claims 1 through 13.

REVERSED

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